D6. Biosecurity

D6.1 Introduction

In the pig industry, biosecurity has become a comprehensive term that encompasses such things as isolation, use of protective clothing, decontamination and restrictions placed on the movement of personnel and equipment.

More generally, biosecurity refers to measures used to protect a herd against the introduction or spread of disease. From a food safety viewpoint, producers can use the same protocols they used in the past to reduce the risk of introducing diseases like Swine Dysentery.

Disease can be spread by carriers such as vehicles, boots, tools and farm equipment. This is referred to as mechanical transfer. We know that one gram (1/30 of an ounce) of feces can be enough to infect thousands of pigs with Swine Dysentery.

Incoming pigs pose the greatest risk to pig populations. Entry precautions help to minimize this risk. In pig operations that purchase animals from an outside source, health status compatibility should be determined. Where the compatibility of health status is unknown, quarantine of new arrivals with sentinel pigs is recommended as a safeguard.

Dogs, cats, rodents, birds, flies and people may be either actively infected carriers and/or mechanical carriers.

We know that rodents can actively shed Salmonellosis, Erysipelas and Collibacillosis. Cats may also introduce *Salmonella* into your herd. Dogs have been shown to carry the Transmissible Gastroenteritis (TGE) virus. Cats present a Toxoplasmosis risk because they shed the eggs of this parasite for several weeks after first exposure. Starlings have been identified as carriers of TGE and Swine Dysentery. Visitors and barn workers have the potential to carry the parainfluenza virus and the pneumonia-causing bacteria, *Pasteurella multocida,* in their nasal passages. The mite that causes Swine Mange can survive up to three weeks in humans suffering from Pig Handler's Itch. Feces from tapeworm-carrying humans contains an infective life stage belonging to this parasite that causes infective cysts to develop in the muscle of pigs that ingest them.

Most biosecurity programs recommend a single entrance to the main barn, that is equipped with a locked door and a doorbell, to protect against risks posed by uninvited visitors.

Humans can be mechanical vectors, spreading diseases by failing to wash their hands after handling dead or dying pigs. They can also track disease-causing microbes from one area to another on their boots, if they don't use boot baths.

Certain viruses can remain airborne over several kilometres. Not much can be done about that, but some risks can be eliminated. Flies can travel up to one and a half kilometres between farms. Rats tend to move between farms more readily than mice. Knowing the proximity to neighbours and what protocols they follow may prompt some pig producers to develop more diligent safeguards. Perimeter fences, signs, weed-free margins around buildings and screening on windows and eaves are some of the things biosecurity experts recommend.

- It is recommended that you wear barn boots only in the barn. If you must wear your barn boots outside of the barn, it is recommended that you make every attempt to not wear them off of your farm. Be aware, though, that even by wearing your barn boots around your own

farm, you may risk cross-contamination and the introduction of microbes to your swine herd. (On-Farm Quality Assessment Form question 27)

- It is recommended that you supply visitors with clean boots and coveralls to wear during their visit and require them to wash their hands before entry. You may also want to consider providing masks for visitors. (On-Farm Quality Assessment Form question 26)
- It is recommended that you require all personnel to use properly maintained boot baths, or to change their boots as they move from one area to another within the barn. (See also Sanitation and Building Design Section)
- It is recommended that vehicles that go from farm to farm should not get too near your barn. Use signs, perimeter fences and barriers to re-direct them
- Be aware of quality control programs that may be used by feed suppliers. Ensure that suppliers have protocols in place for the proper storage and handling of complete feed and feed ingredients, to avoid contamination of feedstuffs by pathogenic organisms or the feces of animals.
- Be aware of the health status of incoming animals and plan entry protocols accordingly. (On-Farm Quality Assessment Form question #26) (See also Purchasing Section)
- Remove dead stock promptly, to minimize the risk of contamination of live animals and facilities with biological and chemical residues that may be present in the carcass. Dispose of the carcasses according to provincial regulations and guidelines. Animals with chemical residues need to be handled appropriately. Contact your veterinarian, renderer, or your provincial department of agriculture or environment for more information.
- It is recommended that cats be kept out of the barn, especially feed bins and feed carts. Cats, especially kittens, can carry and shed microorganisms such as *Toxoplasma* that pose food safety concerns. If you use cats as part of your rodent control program, you are encouraged to keep them in the barn, have them neutered and limit their access to feed storage areas, bins and feeders and pig pens. If cats are kept outside of the barn, make sure that they stay out of the barn, through proper maintenance of the facilities. Likewise, dogs should be kept out of production facilities. (On-Farm Quality Assessment Form question #29).
- Screens are an option to consider to prevent birds from accessing the production area and feed bins. Covering feed bins for animals housed in hoop structures, pole barns or similar facilities will also help to deter the presence of birds.
- Initiate and continue intensive rodent control measures. (On-Farm Quality Assessment Form question #28)

D6.2 Rodent Control

(On-Farm Quality Assessment Form question #28)

- Don't wait until you see signs of rodents to initiate a rodent control program. By the time that you see droppings, tracks or rodents, you already have a problem.
- Evaluate your facilities to identify sources of entry and food for rodents. Rats can squeeze through holes as small as 1.5 cm and mice through openings of 0.6 cm or less. Steel wool, packed tightly into openings, can act as a good temporary plug.
- Close off openings around augers, pipes and wires where they enter structures. Mortar, masonry or metal collars are effective options for this purpose.
- Check outside walls, doors and windows for space that rodents might use to enter your barn.
- Eliminate any trash, equipment, hay, straw or other objects that may be found around the outside of your barn and near the walls.

These provide an attractive area for rodents to hide in and gain access to barns.

- Consider using a gravel perimeter around the barn. Perimeters of at least 90 cm are recommended.
- Keep grass and weeds trimmed around the barn. It is recommended that you never allow grass to grow higher than 20 cm.
- Sweep up any spilled feed around mills and storage bins.
- Use several locations for placement of traps or bait stations. Place these in areas where rodents or signs of rodents have been seen.
- Traps are effective in controlling small rodent populations. They also offer the advantage of not requiring poisons, allowing an evaluation of their effectiveness and the removal of dead animals.
- You may wish to bait traps, but not set them, until the bait has been taken at least once. This will reduce the chance of creating "trap-shy" rodents.
- Check traps and bait stations regularly, refill bait and remove any dead rodents. Dispose of the rodents outside of your production facilities. The frequency of these inspections will depend on the manufacturer's recommendations for your baits and the severity of rodent infestation.
- Mice and rats prefer to travel along walls and edges. Baits and traps should be positioned accordingly. While mice are very curious and will investigate new objects quickly, rats are less adventurous and it may be several days after placement of a trap or bait station before there is evidence of activity.
- Question #28 of the On-Farm Quality Assessment Form requires that you describe your rodent control program. Include all of the steps that you have taken to help reduce or eliminate the rodent population at your facilities. Remember to include a description of trap and bait station locations, types of baits/poisons being used and frequency of inspection. If a pest control company is used, indicate the name and contact information, as well as the name(s) of the product(s) used.
- Keep rodenticides out of the reach of pigs. If accidental exposure does occur, producers must record the exposure and seek guidance from their veterinarian or other qualified consultant to address withdrawal times and any other potential health concerns.
- Producers should monitor bait consumption. Increased bait consumption may indicate an increased or increasing rodent population.

D6.3 Bird Control

- Birds can be physically separated from production and feed storage areas with plastic or nylon netting, hardware cloth or other building materials. Holes in these materials should be no larger than 2 cm.
- Roosting and nesting areas can be eliminated, or made less appealing, by placing a wooden, plastic or plexiglass covering over ledges at a 45° angle, or by making the area unappealing with rough (e.g. wires, staples, nails), sticky or other uncomfortable surfaces.
- Open feeders, bins and carts should be covered.
- Spilled feed should be cleaned up immediately.
- Reduce access to water for birds. Where standing water is maintained in a trough, make sure that it is deep enough that birds cannot stand in it.
- Avoid the use of noise-making devices, as these may disturb your livestock.

D6.4 Fly Control

- The first step in the control of flies and other insects is proper sanitation. Places that can be used for fly reproduction include wet areas, manure, old bedding and areas where feed has been spilled and not cleaned up.
- Keep insecticides out of the access of pigs. If accidental exposure does occur, producers

must record the exposure and seek guidance from their veterinarian or other qualified consultant to address withdrawal times and any potential health concerns.

- Old bales that have been stacked may be wet at the bottom and may provide a breeding ground for flies.
- If manure lagoons are not agitated, a crust will form and flies may breed in that crust.
- Piles of solid manure may be covered with a black tarp to raise temperatures high enough to kill eggs and larvae.
- If possible, set fly traps where insecticide or fly paper is placed inside of an old bleach-style bottle that has had a hole cut in the side, or a similar type of trap. Flies that die in this trap should be disposed of in a trash bin. Female flies may still contain viable eggs, even after death. If flies are swept into the manure pit, these eggs may have an opportunity to hatch. Talk to a pest control company or an entomologist at your provincial department of agriculture for more information.
- Always read pesticide labels carefully, and use only as directed.

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